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(12) United States Patent

Shah

(54) EXTRUSION LAMINATE POLYMERIC FILM ARTICLE AND GASTRIC OCCLUSIVE DEVICE COMPRISING SAME

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See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

| | Michaels et al 604/892.1 Shah |
|---------|--|
| | Mitchell et al 36/29 |
| 4/1998 | Bryant et al 604/145 |
| 11/1998 | Shah |
| 7/2000 | Bonk et al 36/29 |
| 3/2002 | Shah |
| 10/2002 | Shah et al. |
| | 10/1997 2/1998 4/1998 11/1998 7/2000 3/2002 |

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| 6,663,646 | В1 | 12/2003 | Shah |
|--------------|---------------|---------|----------------------|
| 6,712,832 | B2 | 3/2004 | Shah |
| 6,733,512 | B2 | 5/2004 | McGhan |
| 6,976,950 | B2 * | 12/2005 | Connors et al 600/29 |
| 7,112,186 | B2 | 9/2006 | Shah |
| 7,455,863 | B2 | 11/2008 | Hamann |
| 7,470,251 | B2 | 12/2008 | Shah |
| 2004/0186502 | $\mathbf{A}1$ | 9/2004 | Sampson et al. |

FOREIGN PATENT DOCUMENTS

| JP | 51-090376 A | 8/1976 |
|----|-------------|--------|
| JP | 51-100833 A | 9/1976 |
| JP | 51-101084 A | 9/1976 |
| JP | 10-127771 A | 5/1998 |

OTHER PUBLICATIONS

Jones, E., "Thermoforming", "Modern Plastics Encyclopedia", 1970, pp. 15, 17, 51, 600-630, 993-994.

* cited by examiner

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(57) ABSTRACT

A multilayer film including a layer of sealing film, having main top and bottom surfaces, and a layer of thermoplastic polymer film, laminated to the layer of sealing film, on at least one of the main top and bottom surfaces. The sealing film has a composition and thickness imparting gas barrier character to the multilayer film, of which the layer(s) of thermoplastic polymer film by themselves lack such gas barrier character. Such multilayer film is usefully employed to form biologically compatible therapeutic articles such as medical balloons that are constructed to be inflated in vivo.

35 Claims, 2 Drawing Sheets

